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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/721,233 | 11/22/2000 | Josef P. Debbins | 390086.94529 | 9735 |

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EXAMINER

WOOD, WILLIAM H

ART UNIT

PAPER NUMBER

2124

DATE MAILED: 09/28/2004

11

Please find below and/or attached an Office communication concerning this application or proceeding.

SK

Office Action Summary

Application No.

09/721,233

Applicant(s)

DEBBINS ET AL.

Examiner

William H. Wood

Art Unit

2124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Claims 22-29 are pending and have been examined.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03 May 2004 has been entered.

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 16 January 2004 was considered by the examiner.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Vassallo et al.** (USPN 6,157,194) in view of **Li et al.** (USPN 5,602,934).

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Claim 22

Vassallo disclosed a magnetic resonance imaging system (*column 1, line 56 to column 2, line 47*), comprising:

- ♦ a pulse sequence server (*column 3, lines 18-22, controlling element*) to perform a magnetic resonance imaging scan (*column 3, lines 18-22*); and
- ♦ a workstation (*column 1, lines 43-54; column 2, lines 4-47*) coupled to the pulse sequence server for downloading program elements to the pulse sequence server to drive the RF coil and the gradient coil assembly (*column 3, lines 18-22*), the workstation including an graphical application development system (*column 1, lines 43-54; column 3, lines 41-45; column 4, lines 23-35, object oriented developed application system, at least framework and modules provided*) for graphically developing a pulse description and a sequence description to define and control a waveform of control pulses provided on each of the gradient coils and the RF coil (*column 3, lines 41-45; figure 2, NT graphical input*).

Vassallo did not explicitly state *a magnet assembly including a polarizing magnet, a gradient coil assembly, and an RF coil*. **Li** demonstrated that it was known at the time of invention to provide in conventional MRI systems the above components (*column 5, lines 10-46*). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the MRI system of **Vassallo** with polarizing magnet, a gradient coil and a RF coil coupled to the driving server as found in **Li's** teaching. This implementation would have been obvious because one of ordinary skill in the art would

be motivated to construct a conventional system which is thus easy to implement and care for using existing technology.

Claim 23

Vassallo and **Li** disclosed the magnetic resonance imaging system as defined in claim 22, wherein the pulse description is at least one of a 2D spin echo, a 2D gradient-echo, a 2D fast spin-echo, and a 3D gradient-echo sequence (*Li: column 5, lines 10-47; column 15, line 53 to column 16, line 42; figures 10a-10d*).

Claim 24

Vassallo and **Li** disclosed the magnetic resonance imaging system as defined in claim 22, wherein the sequence description defines an acquisition order to define at least one a slice and a k-space sampling order (*Vassallo: column 3, lines 18-22*).

Claim 25

Vassallo and **Li** disclosed the magnetic resonance imaging system as defined in claim 22, wherein the sequence description defines at least one of a 2D sequential, a 2D interleaved, a 3D sequential, a 3D elliptical centric, and a multi-slice CINE acquisition order (*Vassallo: column 6, lines 33-45; column 8, lines 23-42; Li: column 15, line 53 to column 16, line 42*).

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Claim 26

Vassallo and **Li** disclosed the magnetic resonance imaging system as defined in claim 22, wherein the workstation further provides an acquisition description, a data processing description, and a data store description (**Vassallo**: column 3, lines 4-22; column 4, lines 23-40; information provided for controlling the acquisition, processing the received data and database for storage).

Claim 27

Vassallo and **Li** disclosed the magnetic resonance imaging system as defined in claim 22, wherein the workstation further comprises a waveform plotter for graphically displaying a pulse sequence (**Vassallo**: column 3, lines 4-10 and lines 41-45).

Claim 28

Vassallo and **Li** disclosed the magnetic resonance imaging system as defined in claim 22, wherein the pulse description and the sequence description are provided in an application controller downloadable to the pulse sequence server (**Vassallo**: column 3, lines 18-22 and lines 41-45; the information clearly entered and sent to/used by the controller).

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Claim 29

Vassallo and **Li** disclosed the magnetic resonance imaging system as defined in claim 26, wherein the acquisition description includes a set of components for prescribing the real-time processing NMR signals (**Vassallo**: column 1, lines 48-53).

Response to Arguments

4. Applicant's arguments with respect to claims 20-29 have been considered but are moot in view of the new ground(s) of rejection. As the revised rejections indicate above, it is clear **Vassallo** does disclose visual programming a pulse sequence.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Wood whose telephone number is (703)305-3305. The examiner can normally be reached 7:30am - 5:00pm Monday thru Thursday and 7:30am - 4:00pm every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703)305-9662. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-7239 for regular communications and (703)746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

William H. Wood
September 19, 2004


ANIL KHATRI
PRIMARY EXAMINER